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No. V.

TUNING KEY FOR A PIANOFORTE.

The Silver Medal *was presented to Mr.* Frederick Danchell, *11 Gerard Street, Soho, for his Tuning Key for a Pianoforte. The following Communication has been received from the Candidate on the Subject.*

Sir, 11 *Gerard Street, Soho.*

I should be obliged to you to submit to the Society of Arts an improvement I have made in the mode of tuning the pianoforte.

I am, Sir, &c. &c.

A. Aikin, Esq., Fred. Danchell.
Secretary, &c. &c.

One of the greatest inconveniences attending stringed instruments in general, is their liability to get out of tune. The pianoforte has, in this respect, certainly the advantage of other instruments, that it remains, more or less, in tune for several weeks, whilst others require to be tuned every time that they are used. But then, again, when we come to the actual tuning, we soon perceive a considerable advantage in favour of all other stringed instruments: they can be tuned by any one possessing a musical ear, whilst the difficulties in tuning the pianoforte are so great, that they only can be overcome by persons who have obtained a considerable proficiency.

The inconvenience of this has often been felt, and has rendered an improvement which would supersede the actual necessity of a professional tuner desirable in cases, for instance, when only a few notes are out of tune, or at places remote from towns, or in the colonies, where a tuner can only be procured with great difficulty and expense.

Many means have been tried to facilitate the tuning of a piano-forte, such as a set of tuning-forks, consisting of the twelve semi-tones of an octave, a set of pipes, a monochord, and other contrivances of a similar nature; none, however, have answered the purpose, as the great difficulty does not lie in the want of ear, to distinguish the interval sought for, but in that of the mechanical facility in the hand to produce it.

To effect such an arrangement in the piano-forte itself, as that adopted in the guitar, or the double bass, or any other of that kind, would be difficult on account of the want of proper space; and would, besides, make that already expensive instrument still dearer. But even supposing such an arrangement applicable, it could only serve for those instruments yet to be made, and not for that great number already in use.

Impressed with these numerous difficulties, I directed my attention to the instrument which is used for tuning, and found, through this medium, the simplest and surest means of removing those obstacles and inconveniences.

The advantages of this tuning instrument are, briefly, these:—

1. That the nicest interval can be obtained with the greatest ease and certainty.

2. That very little physical strength is required, in comparison with the common tuning hammer.

3. That the strings will be much less liable to break.

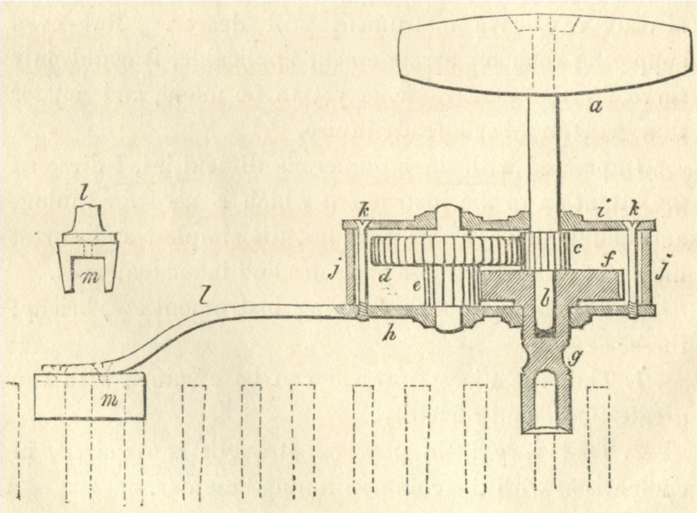
4. That the tuning will be of greater duration; and,

5. That the piano-forte itself will be rendered more durable.

N. B. The two last points will, perhaps, be better understood by the following explanation:—If intervals be very small, it is almost impossible to obtain them by turning: the only way, therefore, is to press with the tuning hammer on the peg, with or against the traction of the string, according to circumstances. But it is obvious that this can only be of temporary duration, and, besides, must be injurious to the piano-forte, because it widens the hole in which the peg stands.

References to the Figure.

In this key the force is not communicated direct from the handle *a* to the key *g*, but round about, through two wheels and two pinions, thereby increasing the power as



much as can be wanted; or, what is more important, enabling the user to turn the pin the smallest possible quantity: for, when any resistance is to be overcome by the force of the hand, it is difficult so to control this latter as to prevent it from moving further than is required. But with this key, from its great power, the resistance is hardly felt; and when the hand does move, the pin moves but one-twelfth of that quantity. *a* is the handle, *b* its lower pivot, entering a hole in the top of the key *g*; *c*, the first pinion on the handle axis, of 12 teeth, engaging the wheel, *d*, of 42 teeth; attached to which is a second pinion, *e*, of 12 teeth, engaging the key-wheel, *f*, of 42 teeth; *g*, shewn in section, is the key. As each of the pinions increases the power, or reduces the motion, 3½ times, the total power, or reduction of motion, is 12¼. *h* is the lower plate of a box through which the key passes; *i*, the upper plate, through which the handle-axis passes; *j j*, a section of the oval ring that surrounds the wheel-work, and keeps the two plates, *h* and *i*, apart; *k k*, two of four screws, which bind together the pieces of which the box is composed; *l*, an elongation of the plate *h* into an arm, to the end of which is fixed the grasp *m*, which, being placed on some of the other keys, as shewn by dotted lines, prevents the box, *h i*, from turning round whilst the key is in use. The separate figure shews the grasp *m*, at right angles to its position in the entire figure.